



01-06-03

01/15/03 2124

15-CT-5271  
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Min Xie et al.

Serial No.: 09/507,521

Filed: February 18, 2000

For: METHOD AND APPARATUS  
FOR FAST NATURAL LOG(X)  
CALCULATION

Art Unit: 2124

Examiner: Do, Chat C.

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**JAN 07 2003**

**Technology Center 2100**

**CERTIFICATE OF MAILING BY EXPRESS MAIL TO  
THE COMMISSIONER OF PATENTS AND TRADEMARKS**

Express Mail mailing label number: **EV 263879158 US**

Date of Mailing: **January 3, 2003**

I certify that the documents listed below:

- Amendment Transmittal form (3 pgs.), in duplicate
- Amendment in response to Office Action dated October 3, 2002 (21 pgs.)
- Submission of Marked Up Paragraphs and Claims (4 pgs.)
- Return Post Card

are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. §1.10 on the date indicated above in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231-0001.

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Commissioner for Patents  
Washington, D.C. 20231

TRANSMITTAL

1. Transmitted herewith is:

**Amendment in response to Office Action dated October 3, 2002 (21 pgs.);  
Submission of Marked Up Paragraphs and Claims (4 pgs.); Certificate of  
Express Mail (1 pg.) ; Return Post Card**

STATUS

2. Applicant

✓ Claims small entity status.  
is other than a small entity.

CERTIFICATE OF MAILING/TRANSMISSION

I hereby certify that this correspondence is, on the date shown below, being:

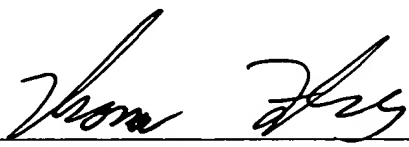
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Date: January 3, 2003

FACSIMILE

Transmitted by facsimile to the Patent and Trademark  
Office

  
Thomas M. Fisher  
Reg. No. 47,564

### EXTENSION OF TERM

3. The proceedings herein are for a patent application and the provisions of 37 C.F.R. 1.136 apply.

(complete (a) or (b), as applicable)

- (a) \_\_\_\_\_ Applicant petitions for an extension of time under 37 C.F.R. 1.136  
(Fees: 37 C.F.R. 1.17(a)-(d) for the total number of months checked below:)

Extension for response within:	Other than small entity Fee	Small entity Fee (if applicable)
_____ first month	\$ 110.00	\$ 55.00
_____ Second month	\$ 410.00	\$ 205.00
_____ Third month	\$ 930.00	\$ 465.00
_____ Fourth month	\$1,450.00	\$ 725.00
_____ fifth month	\$1,970.00	\$ 985.00

Fee: \$ \_\_\_\_\_

If an additional extension of time is required, please consider this a petition therefor.

*(Check and complete the next item, if applicable)*

\_\_\_\_\_ An extension of \_\_\_\_\_ months has already been secured. The fee paid therefor \$ \_\_\_\_\_ is deducted from the total fee due for the total months of extension now requested.

Extension fee due with this request \$

OR

- (b) ☒ Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.

## FEE FOR CLAIMS

4. The fee for claims (37 C.F.R. 1.16(b)-(d)) has been calculated as shown below:

(Col. 1)		(Col. 2)		(Col. 3)	SMALL ENTITY	OTHER THAN SMALL ENTITY	
CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NO. PREVIOUSLY PAID FOR		PRESENT EXTRA	ADDITIONAL RATE FEE	OR	ADDITIONAL RATE FEE
TOTAL	30	MINUS	28	= 2	x \$9 = \$		x \$18 = \$ 36.00
INDEP.	2	MINUS	2	= 0	x \$42 = \$		x \$84 = \$ 0.00
— FIRST PRESENTATION OF MULTIPLE DEP. CLAIM					+ \$140 = \$		+ \$280 = \$
					TOTAL ADDITIONAL FEE \$	OR	TOTAL ADDITIONAL FEE \$ 36.00

- (a) — No additional fee for claims is required.

**OR**

- (b) ☒ Total additional fee for claims required \$ 36.00

## FEE PAYMENT


5. — Attached is a check in the sum of \$ —
- ☒ Charge Deposit Account No. 01-2384 the sum of \$ 36.00  
A duplicate of this transmittal is attached.

## FEE DEFICIENCY

6. ☒ If any additional extension and/or fee is required, charge Deposit Account No. 01-2384.

**AND/OR**

- ☒ If any additional fee for claims is required, charge Deposit Account No. 01-2384.
7. — Other:

  
 Thomas M. Fisher  
 Reg. No. 47,564  
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AMENDMENT

Hon. Commissioner for Patents  
Washington, D.C. 20231

Sir:

In response to the Office Action dated October 3, 2002, Applicants respectfully request entry and consideration of the following amendment:

IN THE ABSTRACT

A method for computing a natural logarithm function includes partitioning a mantissa region between 1 and 2 into  $N$  equally spaced sub-regions; precomputing centerpoints  $a_i$  of each of the  $N$  equally spaced sub-regions, where  $i=0, \dots, N-1$ ; selecting  $N$  sufficiently large so that, within each sub-region, a first degree polynomial in  $m$  computes  $\log(m)$  to within a preselected degree of accuracy for any  $m$  within the sub-region, where  $m$  is a mantissa of a binary floating point representation of a number; and computing a value of  $\log(x)$  for a binary floating point representation of a particular number  $x$  stored in a memory of a computing device utilizing the first degree polynomial in  $m$ .